



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,205	01/03/2002	Melih Ogmen	00437-0006	7755

7590

03/24/2005

Orange & Chari
Suite 4900
P.O. Box 190
66 Wellington Street West
Toronto, ON M5K 1H6
CANADA

EXAMINER

LEUNG, CHRISTINA Y

ART UNIT PAPER NUMBER

2633

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,205

Applicant(s)

OGMEN ET AL.

Examiner

Christina Y. Leung

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 17 May 2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The addition of Figure 4b to the drawings was received on 27 September 2002. Figure 4b is acceptable.
3. However, the drawings are objected to because the elements in the drawings should contain descriptive as well as numeric labels. In particular, elements 62, 63, 64, 65, 66, and 67 in Figure 6 are currently only represented as blank shapes and should have descriptive labels.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 8 is objected to because of the following informalities:

Claim 8 recites “an optical multiplexer connected to each of said laser driver” in line 8 of the claim. Based on Applicants’ specification, Examiner respectfully notes that Applicants may have intended to recite “an optical multiplexer to each of said at least one laser” (not said laser driver); the phrase “each of said laser driver” is also inconsistent because the claim only recites one laser driver.

Claim Rejections - 35 USC § 112

5. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites “an optical multiplexer connected to said switches” in line 6 of the claim. However, claim 8 (on which claim 11 depends) already recites an optical multiplexer, and it is unclear if claim 11 is reciting a modification to the previously recited multiplexer. Based on Applicants’ specification, Examiner respectfully suggests that Applicants amend the phrase to “wherein the optical multiplexer is connected to said switches” or the like, so that claim 11 further modifies the already recited multiplexer but does not recite two distinct multiplexers.

Appropriate correction is required.

Double Patenting

6. Applicants are advised that should claim 3 be found allowable, claims 5 and 7 will be objected to under 37 CFR 1.75 as being substantial duplicates thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In the instant application, Examiner respectfully notes that claims 5 and 7 recite the same claim (word for word) as claim 3: “A method according to claim 2, wherein said optical characteristic further comprises amplitude modification.”

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Betti et al. (US 5,416,628 A).

Regarding claim 1, Betti et al. disclose a method of transmitting data over a fiber-optic channel, the data comprising multi-valued bits each having one of at least three possible values, the method comprising:

a) establishing a respective optical characteristic corresponding to each of the possible values;

b) for each multi-valued bit of the data, transmitting a pulse having the optical characteristic corresponding to the value of the multi-valued bit (column 1, lines 36-50).

Regarding claim 4, Betti et al. disclose that the optical characteristic comprises polarization (such as in “N-level polarization modulation” disclosed in column 8, lines 16-34, for example).

Regarding claim 6, Betti et al. disclose that the optical characteristic comprises phase angle (such as in “N-Phase Shift Keying” disclosed in column 8, lines 16-34).

9. Claims 1-3, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shikada et al. (US 4,700,352 A).

Regarding claim 1, Shikada et al. disclose a method of transmitting data over a fiber-optic channel, the data comprising multi-valued bits each having one of at least three possible values, the method comprising:

a) establishing a respective optical characteristic corresponding to each of the possible values;

b) for each multi-valued bit of the data, transmitting a pulse having the optical characteristic corresponding to the value of the multi-valued bit (column 2, lines 12-50; column 3, lines 7-62; see also Figures 3 and 4A-C) .

Regarding claim 2, Shikada et al. disclose that the optical characteristic comprises wavelength (i.e., frequency; column 1, lines 49-50).

Regarding claims 3, 5, and 7, Shikada et al. disclose that optical characteristic further comprises amplitude modification (column 3, lines 3-6).

10. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Scheirer et al.

Regarding claim 1, Scheirer et al. disclose a method of transmitting data over a fiber-optic channel (Figures 6-9; column 1, lines 60-67; column 2, lines 1-10), the data comprising multi-valued bits each having one of at least three possible values, the method comprising:

a) establishing a respective optical characteristic corresponding to each of the possible values (column 4, lines 13-63);

b) for each multi-valued bit of the data, transmitting a pulse having the optical characteristic corresponding to the value of the multi-valued bit (column 5, lines 20-52).

Regarding claim 2, Scheirer et al. disclose that the optical characteristic comprises wavelength (column 4, lines 13-31; column 5, lines 23-26).

Regarding claims 3, 5, and 7, Scheirer et al. disclose that the optical characteristic further comprises amplitude modification (column 5, lines 32-40).

Regarding claim 6, Scheirer et al. disclose that the optical characteristic comprises phase angle (column 5, lines 41-45).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shikada et al. in view of Kazovsky (US 4,824,201 A).

Regarding claim 8, as well as it may be understood with regard to the claim objection discussed above, Shikada et al. disclose an optical encoder for transmitting data over a fiber-optic channel (Figures 3 and 4A-C), the data comprising multi-valued bits each having at least three possible values, the optical encoder comprising:

- a) a control (including a signal from lowpass filter 20 in Figure 3) ;
- b) a laser driver (pulse driver 3) operated by the control, and providing a mode corresponding to each of the possible values; and
- c) at least one laser 1 connected to the laser driver 3,

the control being configured to receive the data, process each multi-valued bit thereof, and operate the laser driver in the mode corresponding to each multi-valued bit of the data and thereby transmit the data (column 3, lines 7-62).

Shikada et al. do not specifically disclose an optical multiplexer connected to each of the at least one laser. However, multiplexers are well known in the optical communications art, and Kazovsky in particular teach multiplexing a frequency shift keyed signal (such as disclosed by Shikada et al.) with another signal (column 4, lines 38-50).

It would have been obvious to a person of ordinary skill in the art to include a multiplexer as suggested by Kazovsky in the system disclosed by Shikada et al. in order to expand the data capacity of the communications system and transmit more data over the same pathway.

Regarding claim 10, Shikda et al. disclose that the at least one laser provides a wavelength corresponding to each mode, and the laser driver operates in a respective mode by operating the laser at the corresponding wavelength (column 1, lines 48-49).

Allowable Subject Matter

13. Claim 9 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Examiner respectfully notes that the objection to its parent claim 8 should also be resolved in the rewritten claim..

14. Claim 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Again, Examiner respectfully notes that the objection to its parent claim 8 should also be resolved in the rewritten claim.

15. The following is a statement of reasons for the indication of allowable subject matter: The prior art, including Shikada et al., Betti et al., Scheirer et al., and Kazovsky, does not specifically disclose or fairly suggest an optical encoder including the combination of all the elements, functions, and limitations recited in claims 9 or 11 (and including claim 8 on which they each depend).

Regarding claim 9, the prior art does not specifically disclose or fairly suggest an optical encoder as recited in the claim, particularly including a laser for each mode corresponding to each of at least three possible values of multi-valued data bits; and a laser driver operating in a respective mode by powering the laser corresponding to the respective mode, again where the modes correspond to each of at least three possible values of multi-valued data bits.

Regarding claim 11, as well as it may be understood with regard to the rejection under 35 U.S.C. 112, second paragraph discussed above, the prior art does not specifically disclose or fairly suggest an optical encoder as recited in the claim, particularly including a filter and switch for each mode corresponding to each of at least three possible values of multi-valued data bits; and a laser driver operating in a respective mode by operating the switch corresponding to the respective mode, again where the modes correspond to each of at least three possible values of multi-valued data bits.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung
Christina Y Leung
Patent Examiner
Art Unit 2633